RE-Powering America's Land:
Renewable Energy on Potentially Contaminated Land and Mining Sites

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RE-Powering America's Land:
Renewable Energy on Contaminated Land & Mining Sites

- EPA launched *RE-Powering America's Land* in 2008
- Recognized the potential redevelopment opportunities of these EPA tracked sites
  - Brownfields
  - Superfund
  - Abandoned Mine Lands
  - RCRA
- To date, have mapped over 13 million acres

Why the Focus on Renewable Energy Development on EPA Tracked Sites?

- **Many of these sites offer:**
  - Adequate Zoning
  - Existing infrastructure - transmission lines, roads and railway
  - NIMBY issues may be less prevalent
- **Siting renewable energy on these sites may:**
  - Increase economic value for the property
  - Further environmental sustainability by maximizing land use
  - Have lower overall transaction costs compared to greenfields
  - Reduce the stress on greenfields by reusing these sites
  - Provide clean energy for use on-site, locally, and/or to utility grid
  - Create local jobs for development and operation of renewable energy facilities

Who's the Audience?

- Developers
- Investors
- Environmental Managers
- Consultants
- Renewable Energy Industries
- Community Leaders
- Local, State, and Federal Officials – environmental, economic development, planners
- Anyone interested in renewable energy projects!

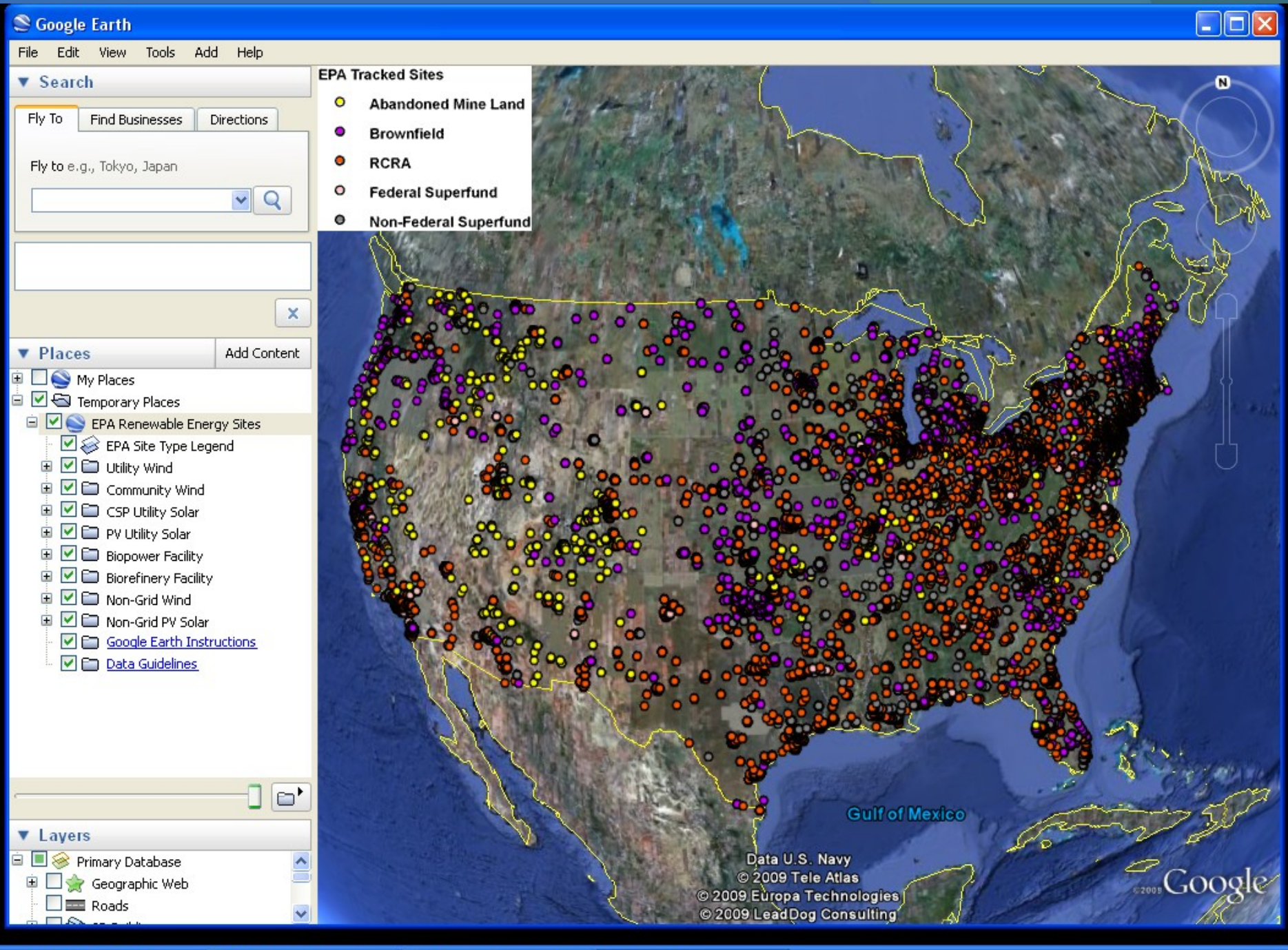
RE-Powering Tools

- **Google Earth Maps**
  - Joint EPA-NREL venture produced interactive maps
- **Success Stories**
  - identifying and sharing successes
- **Incentives**
  - State-specific maps and financial incentive sheets describing renewable energy and contaminated lands redevelopment incentives in each state
- **Technical Assistance**

Website: www.epa.gov/renewableenergyland

Google Earth Mapping Tool

- **Mapped EPA inventory of EPA tracked sites**
  - Abandoned Mine Lands
  - Brownfields
  - RCRA
  - Superfund
- **National Renewable Energy Laboratory (NREL) Data**
  - Wind, Solar and Biomass Resources
- **Infrastructure Data**
  - U.S. Highways
  - U.S. States
  - U.S. National Transportation Atlas Railroads
  - Transmission Lines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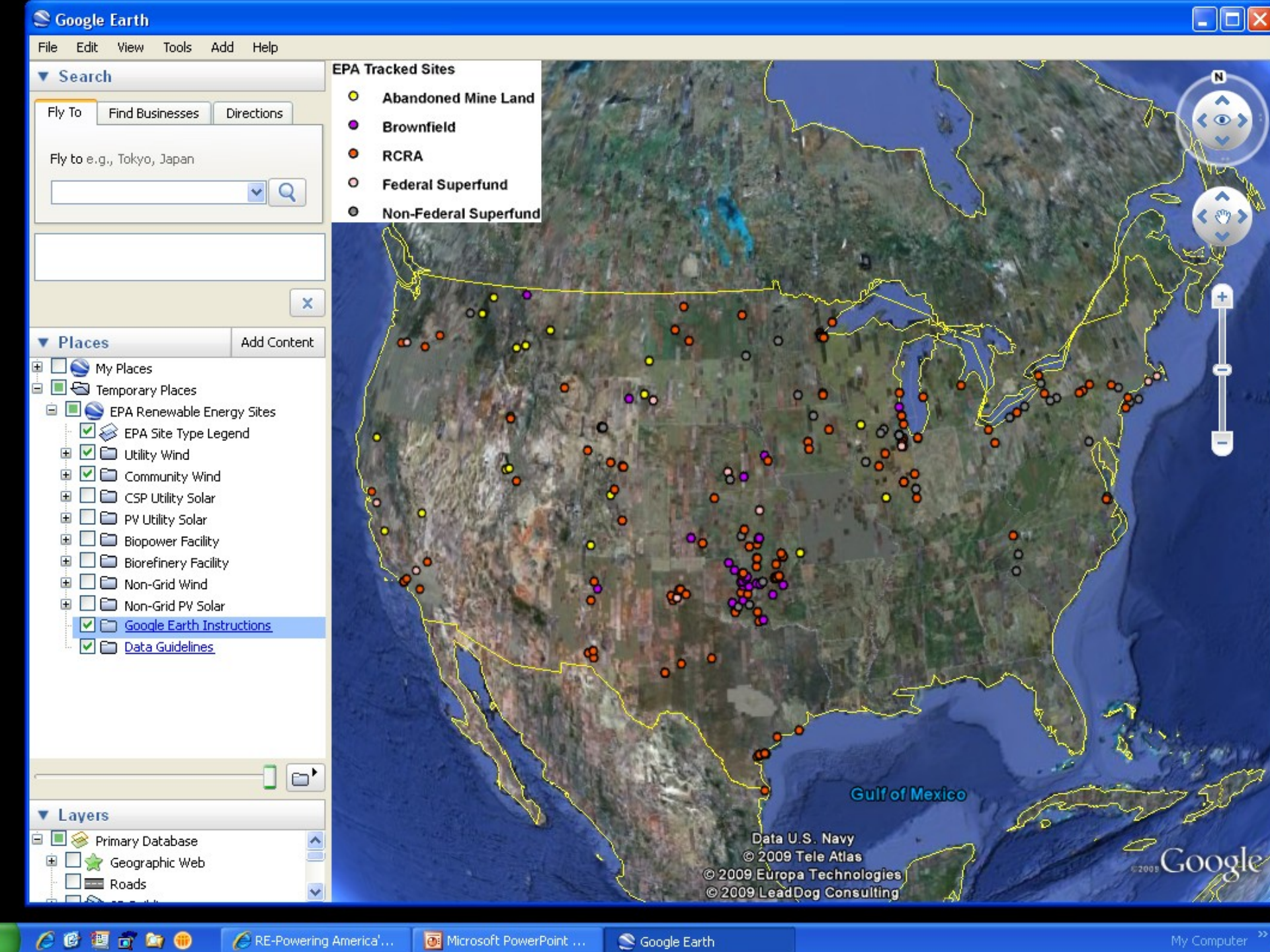
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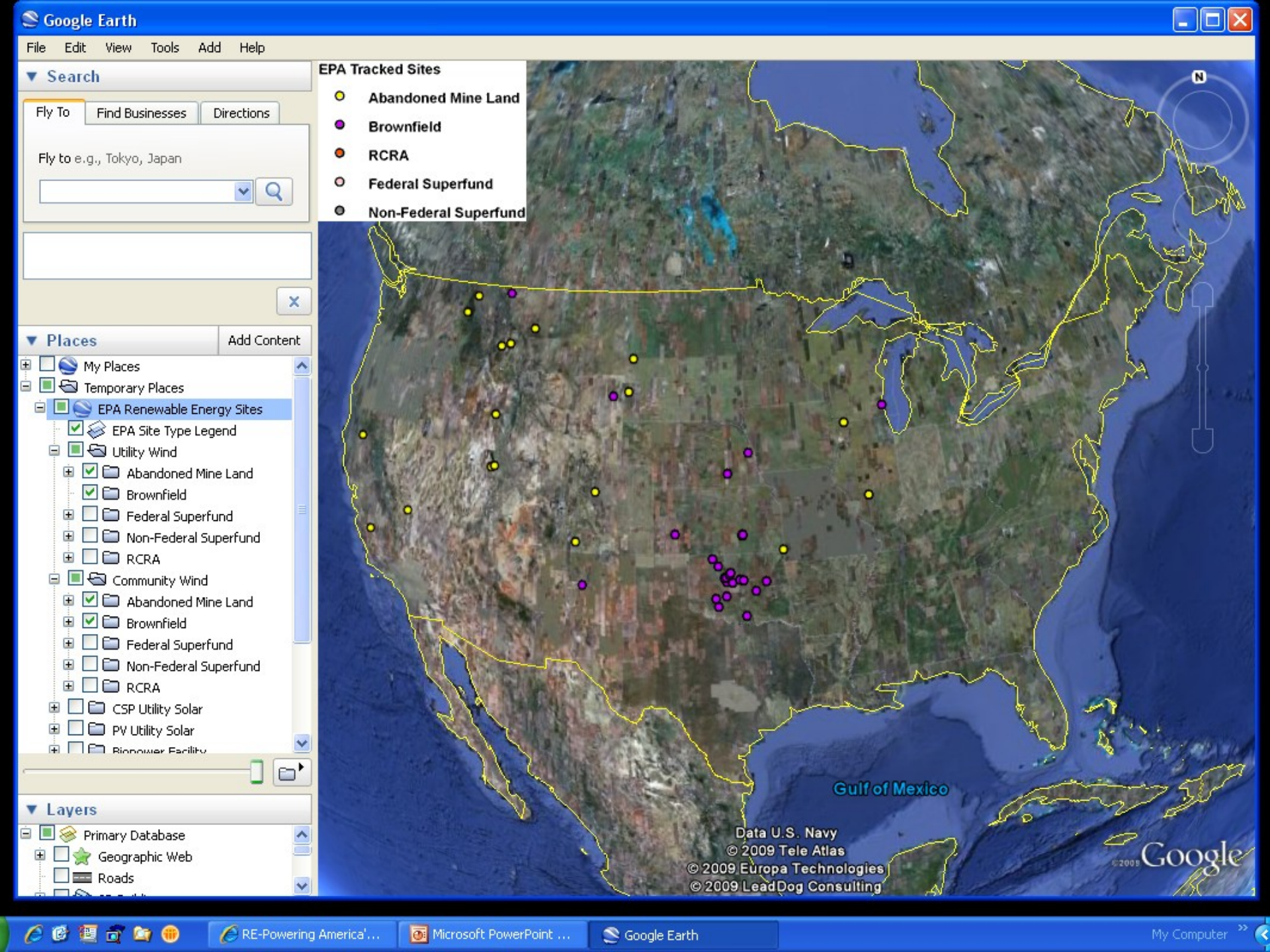
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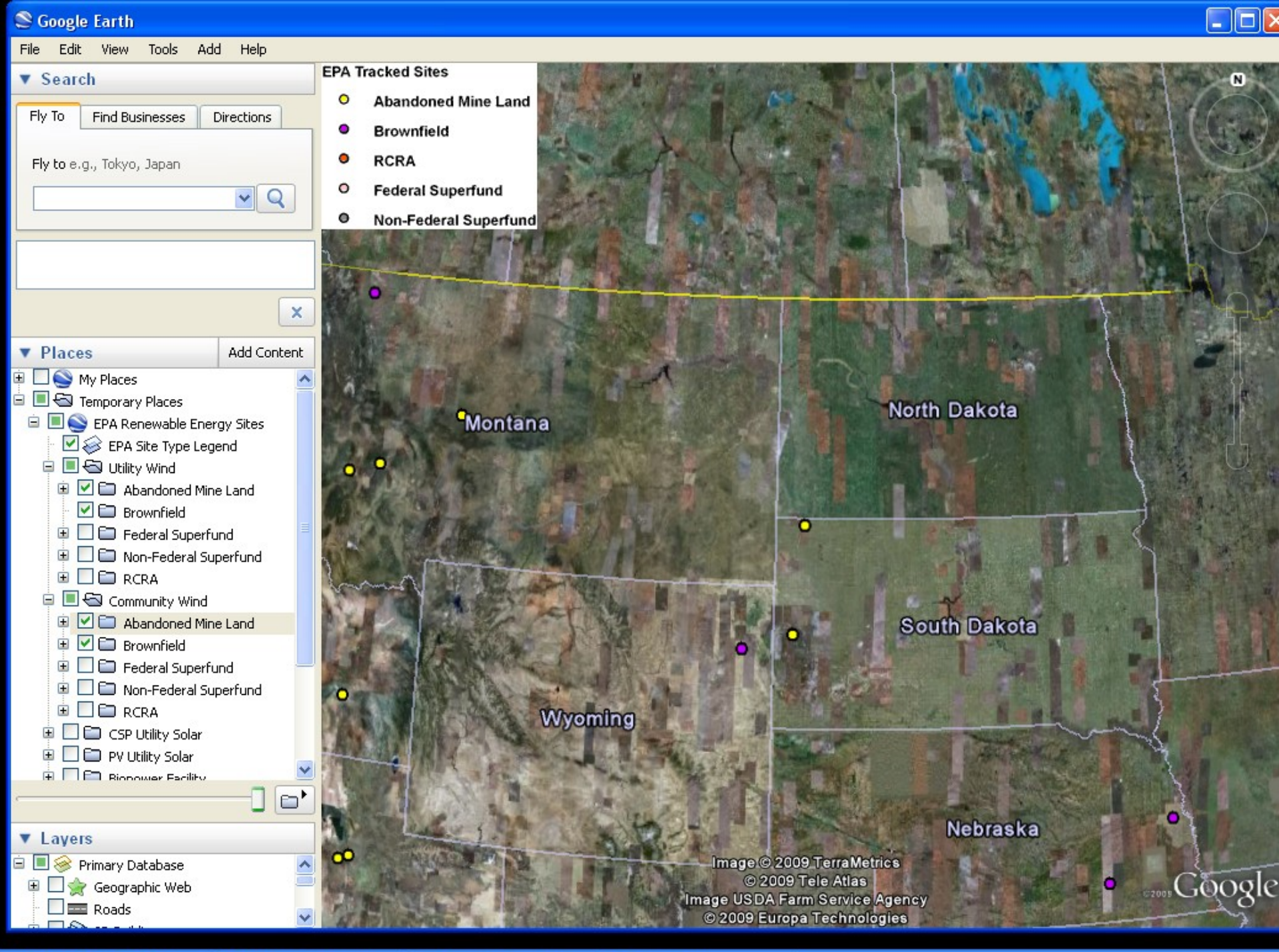
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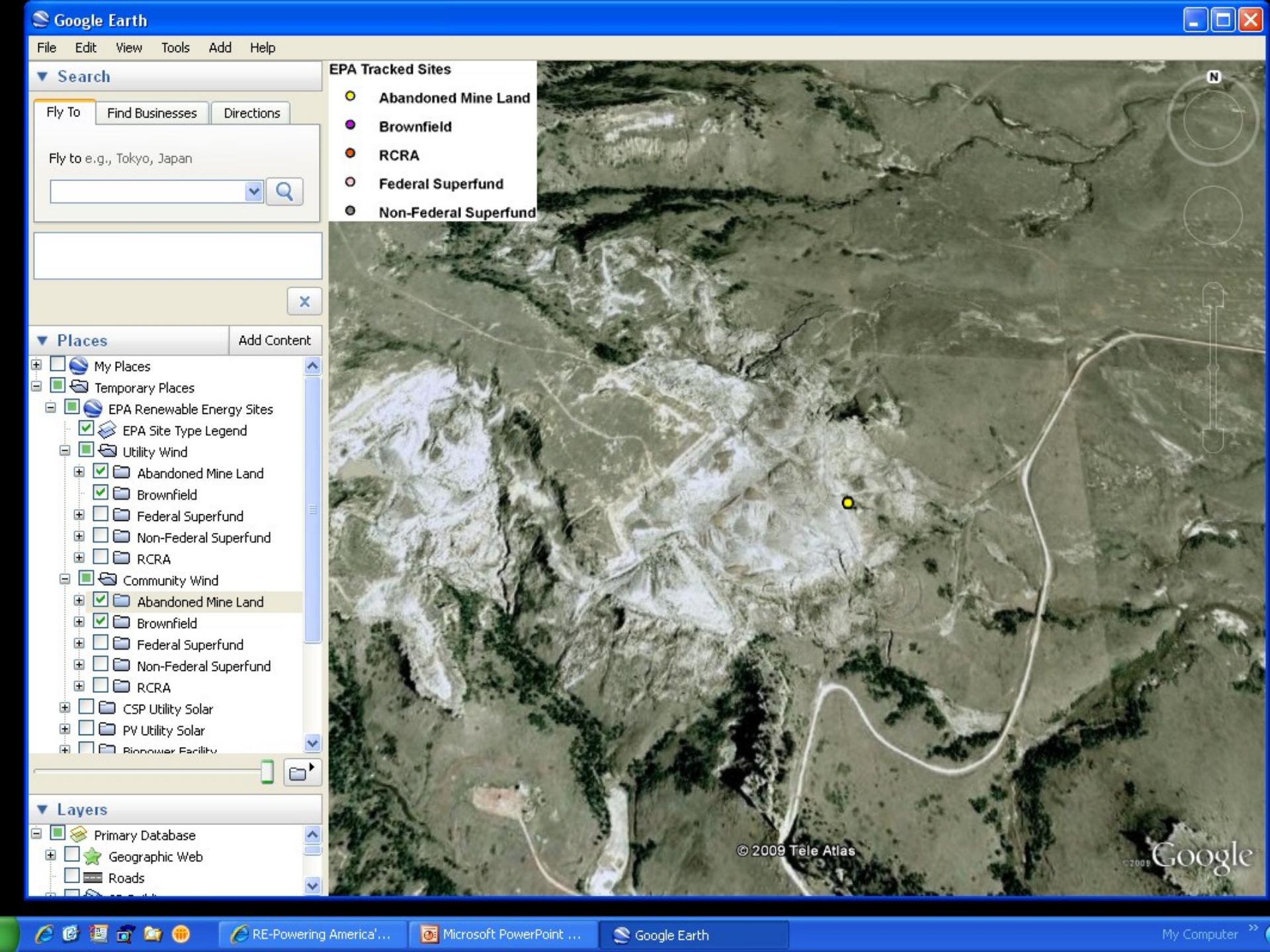
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NORTH CAVE HILLS MINING SITES

City: BUFFALO
State: SD
Mapped Acreage: 1,000.0
EPA Program: Abandoned Mine Land
EPA Region: 8
EPA ID: SD0012261936
Current Environmental Status of Site: EPA Cleanup Program information

Renewable Energy Potential: Community Wind; Non-Grid Wind; Non-Grid PV Solar
Wind Power Class: 4
Wind Power Density (W/m^2), at 50 Meters: 400-500
Wind Resource Potential: Good
Utility Solar Power Resource (kWh/m^2/day): 4.97
Utility Solar Potential: Good
Non-Grid Connected Photovoltaic Solar Resource (kWh/m^2/day): 4.99
Non-Grid Connected Photovoltaic Solar Potential: Very Good
Resources for Biopower (metric tons/year) : 145,052
Biopower Resource Potential: Good
Resources for Biorefinery (metric tons/year) : 143,616
Biorefinery Resource Potential: Good
Site-Specific Renewable Energy Data: Renewable Energy Excel spreadsheet
Data and Methodology Description: Data Guidelines document

Additional Information: US and state maps and incentive fact sheets
Contact: cleanenergy@epa.gov
Disclaimer: This map and its associated data are intended to provide a general understanding of the renewable energy potential of EPA tracked sites. They will be updated periodically. Additional site specific analysis is required to determine the actual renewable energy potential of EPA tracked sites. See the Data Guidelines document for specific information on methodology and data considerations.

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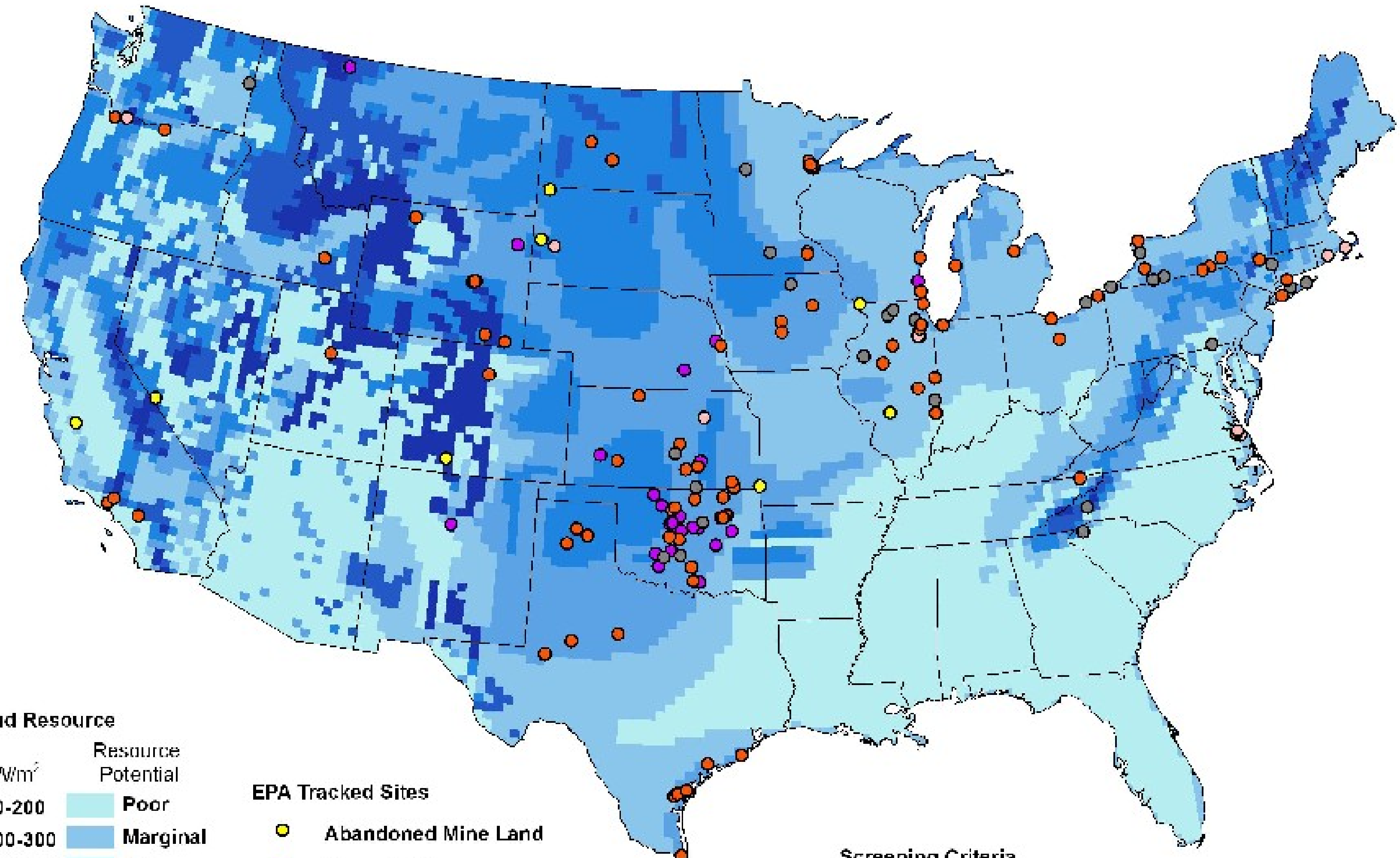
National and State Maps: EPA Tracked Sites

EPA Tracked Sites Potential

- Utility Scale Wind Energy Generation
- Community Wind Energy Generation
- Utility Scale Concentrated Solar Power (CSP) Energy Generation
- Utility Scale Photovoltaic (PV) Solar Energy Generation
- Biopower Facility Siting
- Biorefinery Facility Siting
- Non-Grid Connected Wind Energy Generation
- Non-Grid Connected Photovoltaic (PV) Solar Energy Generation

EPA Tracked Sites with Community Wind Energy Generation Potential



Wind Resource

Power Class	W/m²	Resource Potential
1	0-200	Poor
2	200-300	Marginal
3	300-400	Fair
4	400-500	Good
5	500-600	Excellent
6	600-800	Outstanding
7	>800	Superb

EPA Tracked Sites

- Abandoned Mine Land
- Brownfield
- RCRA
- Federal Superfund
- Non-Federal Superfund

Screening Criteria

Wind power class of 3 or greater, measured at 50m above ground

Property size between 100 and 1,999 acres

Distance to graded roads of 25 miles or less

Distance to transmission lines is not a screening criterion because energy is generally distributed locally

This map was developed by SRA International for the U.S. Environmental Protection Agency (EPA) OSWER Center for Program Analysis. Results are based on site screening criteria adapted from National Renewable Energy Laboratory (NREL) criteria and GIS data provided by NREL and EPA. This map and its associated data are intended to provide a general understanding of the renewable energy potential of EPA tracked sites; additional site specific analysis is required to determine the actual energy generation potential of EPA tracked sites. For further information, please see the accompanying Data Guidelines document, or contact cleanenergy@epa.gov

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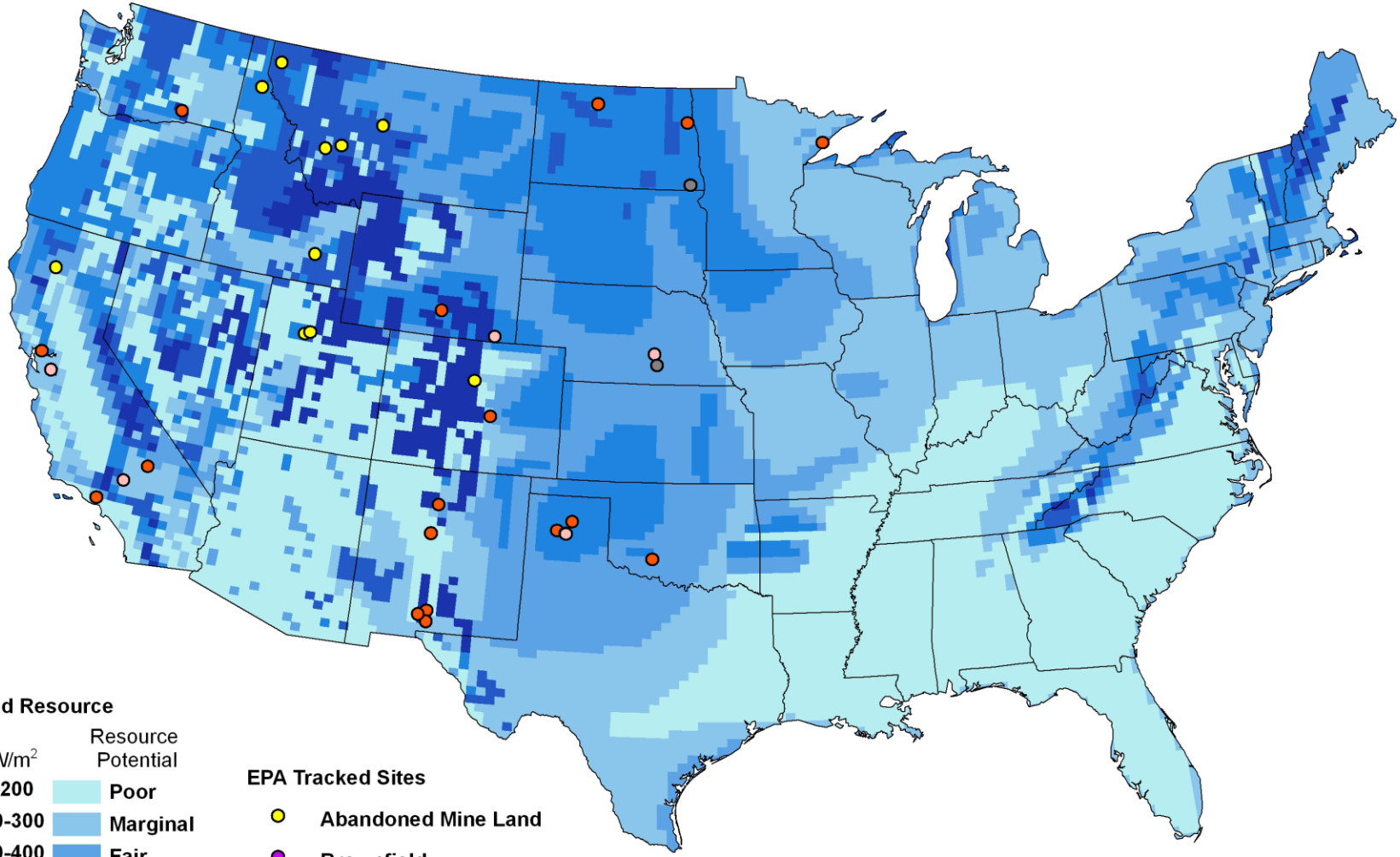
EPA Tracked Sites with Utility Scale Wind Energy Generation Potential



Wind Resource

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7	>800	Superb

EPA Tracked Sites

- Abandoned Mine Land
- Brownfield
- RCRA
- Federal Superfund
- Non-Federal Superfund

Screening Criteria

Wind power class of 4 or greater,
measured at 50m above ground
Distance to electric transmission lines of 10 miles or less
Property size of 2,000 acres or more
Distance to graded roads of 25 miles or less

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Incentive Fact Sheets

- **State Incentive Fact Sheets for Clean and Renewable Energy and Development of Contaminated Lands**
  - ➞ Funding – grants, loans, bonds
  - ➞ Taxes – abatements, deductions, credits
  - ➞ Other – technical assistance contacts, net metering and limited liability information
- **Federal Incentive Fact Sheet**

Success Stories

- **Steel Winds – Lackawanna, New York**
  - 30 acre Bethlehem Steel idle for 30 years – Superfund and Brownfields
  - One of the first wind farms in the country
  - 50 million Kilowatt Hours each year, enough power to sustain 9,000 homes
- **Summitville Mine, Rio Grande County, Colorado**
  - 1,400 acre heap leach gold and silver mining
  - Constructing micro hydroelectric plant
  - Up to 290K kilowatt-hours per year, can power 25 homes AND operate a required onsite water treatment plant

Additional Website Resources:

- Tools and Guidance for Mine Site Redevelopment
- Revitalization Handbook
- Liability Relief Resources

Planning for the Future
The Four Pillars

- Tools
  - Completing renewable energy mapping for Geothermal and Landfill Methane generation potential
- Strategic Outreach
  - Organizing stakeholder meetings
- Technical Assistance
  - Assistance to the Regions through Interagency Agreement
- Building Partnerships
  - Industry, State, Local, Federal, Non-profits

More Information

- RE-Powering America's Land: Renewable Energy on Contaminated Land and Mine Sites

  www.epa.gov/renewableenergyland

- Addition Questions or Information

  Email: **cleanenergy@epa.gov**

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THANK YOU!!!